

CORE CURRICULUM COMPONENT APPLICATION
Texarkana College

Part I: Course Information

Course Type

- Existing/Restructured
 New Course

Course Prefix & Number: **CHEM 1311**

Texas Common Course Number (TCCN): **1311**

Course Title: **General Chemistry I**

Course Catalog Description

General Chemistry I (4,3,3). Fundamental principles of theoretical and applied chemistry, stoichiometry, atomic structure, periodic arrangement of elements, ionic and covalent bonding, gases, liquids, and solids.

Course Prerequisites:

College Algebra or concurrent enrollment in Chemical Calculations.

Available Online?

- Yes
 No

Part II: THECB Course Objectives

Upon successful completion of this course, students will:

1. Define the fundamental properties of matter.
2. Classify matter, compounds, and chemical reactions.
3. Determine the basic nuclear and electronic structure of atoms.
4. Identify trends in chemical and physical properties of the elements using the Periodic Table.
5. Describe the bonding in and the shape of simple molecules and ions.
6. Solve stoichiometric problems.
7. Write chemical formulas.
8. Write and balance equations.
9. Use the rules of nomenclature to name chemical compounds.
10. Define the types and characteristics of chemical reactions.
11. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems.
12. Determine the role of energy in physical changes and chemical reactions.
13. Convert units of measure and demonstrate dimensional analysis skills.

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14. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
15. Demonstrate safe and proper handling of laboratory equipment and chemicals.
16. Conduct basic laboratory experiments with proper laboratory techniques.
17. Make careful and accurate experimental observations.
18. Relate physical observations and measurements to theoretical principles.
19. Interpret laboratory results and experimental data, and reach logical conclusions.
20. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
21. Design fundamental experiments involving principles of chemistry.
22. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

[See attached syllabus.](#)

Part III: THECB Skill Objectives

- 1. Critical Thinking Skills:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- 2. Communication Skills:** to include effective development, interpretation and expression of ideas through written, oral and visual communication
- 3. Empirical and Quantitative Skills:** to include applications of scientific and mathematical concepts.
- 4. Teamwork:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Part IV: Course Student Learning Outcomes (SLO)

Upon successful completion of this course, students will:

1. Define the fundamental properties of matter.
2. Classify matter, compounds, and chemical reactions.
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4. Identify trends in chemical and physical properties of the elements using the Periodic Table.
5. Describe the bonding in and the shape of simple molecules and ions.
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7. Write chemical formulas.
8. Write and balance equations.
9. Use the rules of nomenclature to name chemical compounds.
10. Define the types and characteristics of chemical reactions.
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13. Convert units of measure and demonstrate dimensional analysis skills.
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 16. Conduct basic laboratory experiments with proper laboratory techniques.
 17. Make careful and accurate experimental observations.
 18. Relate physical observations and measurements to theoretical principles.
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 21. Design fundamental experiments involving principles of chemistry.
 22. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.
- [See attached syllabus.](#)

Skill Objective:	Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
THECB Course Objective	(SLO #19) Interpret laboratory results and experimental data, and reach logical conclusions.
Course Student Learning Outcome	(SLO #19) Interpret laboratory results and experimental data, and reach logical conclusions.
General Learning Activities	<p>Materials 8-Beral pipettes (small) Stirrers- 1 dozen simple wooden tooth picks 1-24 Well-plate</p> <p>Chemicals 6-capped vials (labeled A, B, C, D, E, and F), 5 mL of solution</p> <ul style="list-style-type: none"> A. Deionized Water B. B 1% Soluble starch C. 1 M Sodium thiosulfate (BaS_2O_3) D. 0.2 M Potassium iodide (KI) E. Deionized water F. 3 % Hydrogen peroxide <p>Students are not told the contents of the vials. Students are broken into groups of three to four and assigned a task of deciding how to combine the chemicals from the six vials to obtain the colors, yellow-blue-clear, in that order. Each group must develop a detailed plan before they can start the process.</p>

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	<p>The plan must be in writing and available to the teacher and the class. After the plan is developed the group may test it using the chemicals from the vials using, the dropper plate, pipettes, and stirrers. If the plan works, the group produces a report and prepares a presentation. If the plan fails, adjustments are necessary to produce a workable plan.</p> <p>The chemistry of the color reactions are explored during lecture as the topics arise and the students have visual recollection.</p>
<p>Assessment <i>Must Include Assignment & Rubric</i></p>	<p>Grade. See attached rubric</p>

<p>Skill Objective:</p>	<p>Communication Skills: to include effective written, oral, and visual communication</p>
<p>THECB Course Objective</p>	<p>(SLO #19) Interpret laboratory results and experimental data, and reach logical conclusions.</p>
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<p>Skill Objective:</p>	<p>Empirical and Quantitative Skills: to include applications of scientific and mathematical concepts.</p>
<p>THECB Course Objective</p>	<p>(SLO #19) Interpret laboratory results and experimental data, and reach logical conclusions.</p>
<p>Course Student Learning Outcome</p>	<p>(SLO #19) Interpret laboratory results and experimental data, and reach logical conclusions.</p>
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Skill Objective:	Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
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